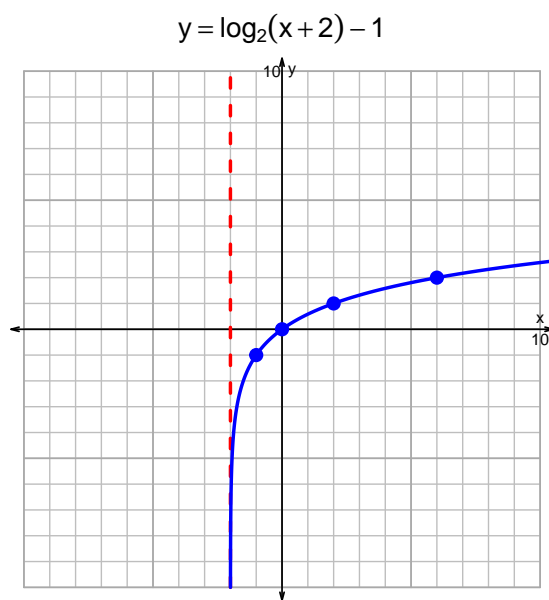
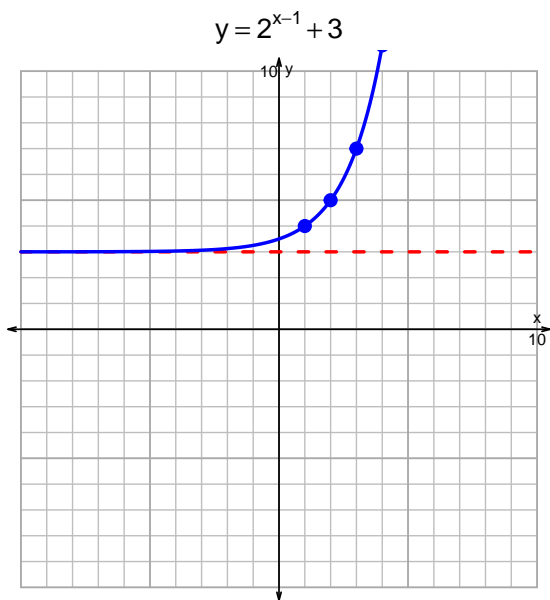


Name: _____

Date: _____

s18: EXP LOG (SLTN v357)

1. (10 pts) Graph $y = 2^{x-1} + 3$ and $y = \log_2(x+2) - 1$ on the grids below. Also, draw any asymptotes with dashed lines.



Somewhat useful hint: $2^3 = 8$, and thus $\log_2(8) = 3$.

2. (10 pts) Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression. Please do not do any arithmetic; just move numbers around.

$$-19 = \left(\frac{-7}{3}\right) \cdot 10^{-5t/4}$$

Divide both sides by $\frac{-7}{3}$.

$$\frac{19 \cdot 3}{7} = 10^{-5t/4}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{19 \cdot 3}{7} \right) = \frac{-5t}{4}$$

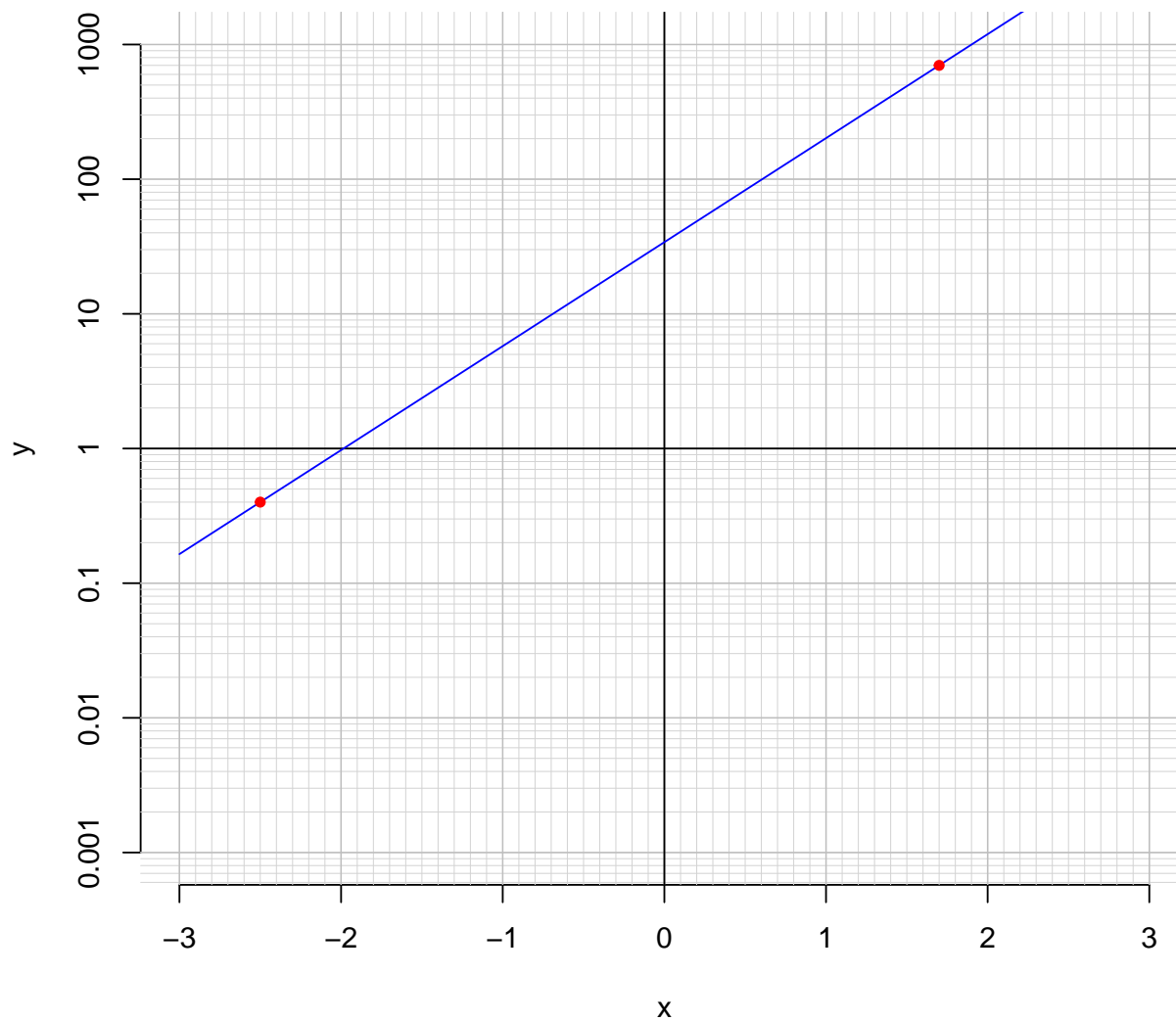
Divide both sides by $\frac{-5}{4}$.

$$\frac{-4}{5} \cdot \log_{10} \left(\frac{19 \cdot 3}{7} \right) = t$$

Switch sides.

$$t = \frac{-4}{5} \cdot \log_{10} \left(\frac{19 \cdot 3}{7} \right)$$

3. (10 pts) An exponential function $f(x) = 34.1 \cdot e^{1.78x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(1.7)$.

$$f(1.7) = 700$$

- b. The inverse function is logarithmic.

$$f^{-1}(x) = \frac{1}{1.78} \cdot \ln\left(\frac{x}{34.1}\right)$$

Using the plot above, evaluate $f^{-1}(0.4)$.

$$f^{-1}(0.4) = -2.5$$